Review of netCDF-4/HDF5 implementation and operational suitability

NASA's Earth Science Data Systems Standards Process Group (SPG) is considering the network Common Data Form version 4, which uses the Hierarchical Data Format version 5 as a storage layer (netCDF-4/HDF5), for adoption as a community standard. You are invited to review this Request For Comment (RFC) in the context of your **implementation experience** with this data format specification and its **suitability for operational use**. ***You only need to answer questions applicable to you.*** Please send completed review to: spg-rfc-022@lists.nasa.gov.

Implementation Experience questions:

1. *(Your background)* Describe in a sentence or two your overall implementation experience related to the proposed standard. *(e.g., specification implementer, tools developer, data provider, scientific analyst, science user, etc.)* Have you directly implemented the netCDF4 format specification or modified a netCDF-4 library using the specification? Did you use pre-existing software, and if so, what did you use?

2. *(Completeness)* Does the proposed standard document provide all the detail you need to implement it in software? *(e.g., to read or write a data file; to implement or modify the library, a profile or extension; or develop a tool such as a format translator)* If not, describe what is missing in the specification.

3. *(Accuracy)* Do any parts of the specification contain inaccuracies or internal inconsistencies? If so, please provide details.

4. *(Clarity)* Is any part of the specification ambiguous, or poorly explained? If so, please provide details.

5. *(Balance)* Does the proposed standard describe the right set of concepts and data types, and enable the appropriate data operations for its intended users? Is this set of concepts and data types an overly broad set (requiring excessive complexity) or narrowly simplistic set?

6. *(Usefulness)* How well does netCDF-4 meet your information sharing needs? *(e.g., does it work well with the data types and data manipulations in your application? Does it properly represent your datasets? What are the pros and cons of this data format?)*

7. *(Implementation)* What implementation challenges does netCDF-4 present? (*e.g., does it require advanced processing power, large amounts of memory, complex configuration, etc*.? *Does it scale to a production environment?)*

8. *(Flexibility)* In what software environment(s) have you used netCDF-4 (e.g., Solaris, Linux, Windows, Mac OS X)? Have you implemented, tested or deployed netCDF-4 or packages other than those provided by the original netCDF-4 developers?

Operational Suitability questions:

9. Do you currently use or plan to use netCDF-4 in a production setting? What types of applications do you use with netCDF-4? Is netCDF-4 applicable to your applications (e.g., *Does it work well with the data types and data manipulations in your application?)*

10. NetCDF-4 supports two data models, the classic model, which is consistent with earlier versions of netCDF-4, and the enhanced model, which provides some additional capabilities available with HDF5. Which of these data model(s) do/will you use and why?

11. Why do you choose to use netCDF-4 over other data formats for your applications?

12. Have you or your users encountered any difficulty when using some of the data access or visualization tools (e.g., IDL, GrADS, etc.) on netCDF-4 data files? If you have, please provide a brief description of your experience.

13. Does the netCDF-4 file format meet your requirements for storing and accessing data? (e.g., *Can it handle the data types in your applications?)*

14. What operational challenges or limitations does netCDF-4 present? (*e.g., Does it take a long time to learn how to use it? Does it require advanced processing power, large amounts of memory, complex configuration, etc)*

15. What benefits does netCDF-4 present? Do the benefits of netCDF-4 outweigh the challenges? *(e.g., Does it offer the flexibility you want to package the data types in your applications? Does it facilitate interdisciplinary studies?*)

16. How much data do/will you provide or archive in netCDF-4? *(number of distinct data products or data sets, total data volume, number of files.)*

17. How many users do you have or expect to have for data in netCDF-4, and what is your expected user community?

18. *(User comments)* Any additional comments, observations or criticisms of netCDF-4 and the RFC can be provided here.